

ANALYSIS OF POLARIMETRIC SCATTERING FROM VEGETATED TERRAIN

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This paper describes an integrated approach to analyze polarimetric radar images of vegetated terrain. Previous studies of radar images of vegetated terrain have shown that the radar cross section saturates for larger values of vegetation biomass. The actual biomass level at which the radar cross section saturates is a function of the frequency and polarization. Polarimetric data allows further analysis of the scattered signals, however. Using multifrequency polarimetric images, we will show how differences can be detected, even if the biomass level exceeds the value where the radar cross section saturates. Our analysis technique uses an unsupervised classification algorithm previously published. More differences can be detected if one includes a more quantitative decomposition of the polarimetric scattering, based on a method suggested by Cloude. We will show several examples of our analysis, and discuss the potential for deriving additional information about the vegetation from this analysis.